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STATUS OF MOUNTAIN PINE BEETLE INFESTATIONS ON THE HEBGEN LAKE RANGER DISTRICT, GALLATIN NATIONAL FOREST, MONTANA

by

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An infestation of the mountain pine beetle, Dendroctonus ponderosae Hopk., was detected on the Hebgen Lake District, Gallatin National Forest, Montana, during 1971. An earlier evaluation of this infestation (Ciesla, 1971)1/ indicated that this infestation might be a portion of a larger infestation encompassing portions of the Targhee National Forest and Yellowstone National Park.

A reconnaissance survey was conducted on the Hebgen Lake Ranger District to determine the extent of mountain pine beetle infestations in the District and to establish if it was isolated or adjoined the larger Targhee-Yellowstone infestation. M. D. McGregor and Scott Tunnock, accompanied by Gene C. Lasch, Raymond A. Christensen, and Gary T. Christensen of the Hebgen Lake District conducted this survey during the period November 8-11.

SURVEY METHOD

A reconnaissance survey was conducted along major road systems and around clearcut blocks in the South Fork drainage of the Madison River, Cream Creek, around the Madison Arm Northwest to Spring Creek, and in Tepee, Canyon, and Beaver Creek drainages. Infestation centers and number of trees containing brood were mapped at each epicenter.

1/ Ciesla, W. M. 1971. Evaluation of mountain pine beetle infestations in the Hebgen Lake District, Gallatin NF, Montana. USDA, Forest Service, Northern Region, Division of State and Private Forestry, Report 71-38.

RESULTS

Trees attacked in 1971 were detected in all drainages examined (Fig. 1). Infested trees occur as scattered singles, or in groups of ones, twos, up to 10 trees per group. Older attacks ranging from 1 to 4 years of age were found adjacent to currently attacked trees in some areas. This indicates the population has been at an endemic level for several years. Considerable strip attacked trees and pitchouts were observed throughout the District. Nearly one-half of infested trees marked in the United Campground were pitchouts.

Mountain pine beetle brood are in the egg and small larval stages of development. However, the majority of parent adult beetles have not completed gallery construction or egg deposition.

Low winter temperatures will probably result in mortality in excess of 50 percent to eggs and larvae in instars I and II this winter. Mortality due to cold temperatures will probably be minimal to broods in larger d.b.h. trees. Brood development is further advanced in trees 10 inches d.b.h. and larger.

DISCUSSION

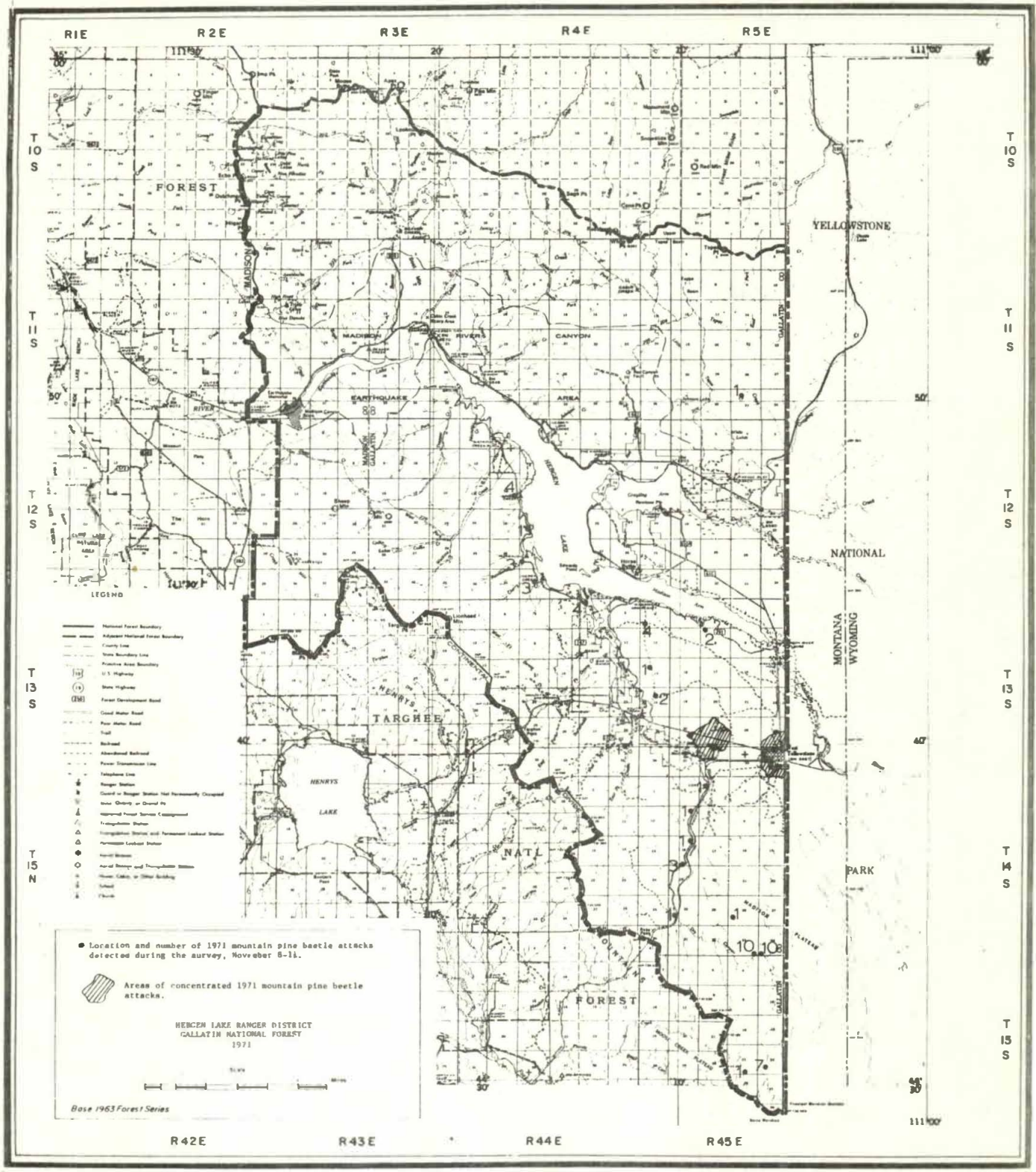
Mountain pine beetle populations have increased in lodgepole pine stands on the Hebgen Lake Ranger District during 1971. The increase in number of infested trees probably resulted from a buildup of the resident beetle population. Contiguous infestation now occurs from the Madison Plateau in Yellowstone National Park, north throughout the Hebgen Lake District to the Gallatin Canyon.

Few areas were observed that will maintain an infestation at an epidemic level for more than 2 to 3 consecutive years. There is a lack of suitable host trees 10 inches d.b.h. and larger and susceptible lodgepole pine are widely scattered. Stands are not contiguous.

Intensity of the infestation is increasing and number of infested trees will increase. The number of infested trees per acre may reach levels currently occurring in Yellowstone National Park within 2 or 3 years in stands containing large diameter lodgepole pines.

The cost of a District-wide survey would be prohibitive because of the widely scattered occurrence of attacked trees. Direct control by felling and spraying with ethylene dibromide, or felling, piling, and burning would also be costly. Suppression costs vary from $2.50 to $9/tree depending on tree size and accessibility. Cost for felling and burning is about $4.50 per tree. Because of the widespread nature of the outbreak, it is doubtful direct control measures will suppress the infestation.

Infested trees in the United Campground and other high-value areas should be felled and burned, or used for firewood before beetles emerge in June.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AREA
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LEGEND
Location and number of 1971 mountain pine beetle attacks detected during the survey, November 8-14.
Areas of concentrated 1971 mountain pine beetle attacks.
HEBGEN LAKE RANGER DISTRICT
GALLATIN NATIONAL FOREST
1971
Base 1963 Forest Series
R42E
R43E
R44E
R45E